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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,852	09/26/2005	Giorgio Bonmassar	325216/US/2-475387-00141	4083
26710 7590 09/29/2010 QUARLES & BRADY LLP 411 E. WISCONSIN AVENUE SUITE 2040 MILWAUKEE, WI 53202-4497				
EXAMINER NATNITHITHADHA, NAVIN				
ART UNIT 3735		PAPER NUMBER		
NOTIFICATION DATE 09/29/2010		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pat-dept@quarles.com

### Office Action Summary

**Application No.**

10/531,852

**Applicant(s)**

BONMASSAR ET AL.

**Examiner**

NAVIN NATNITHITHADHA

**Art Unit**

3735

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-68 and 80-90 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. According to the Amendment, filed 23 June 2010, the status of the claims is as follows:

Claims 80 and 86 are currently amended;

Claims 15-17, 19-25, 27-29, 31-39, 41-43, 45-54, 56-58, 60-69, 81, 83-85, 87-89, and 90 are as originally filed;

Claims 14, 18, 26, 30, 40, 44, 55, 59, 82, and 88 are previously presented; and

Claims 1-13, 69-79, and 91-99 are cancelled.

2. The rejection to claims 80-90 under 35 U.S.C. 101 as being directed to non-statutory subject matter are WITHDRAWN in view of the Amendment, filed 23 June 2010.

### ***Claim Rejections - 35 USC § 101***

3. Claims 14-68 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 14-68 are directed to an "arrangement". This language makes unclear as to what statutory category the claims are directed to. The Examiner suggests amending the term "arrangement" with "apparatus", "device", or "system".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 14-68 and 80-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Hovland et al, U.S. Patent No. 6,015,393 B1A ("Hovland").

**As to Claim 14**, Hovland teaches the following:

An arrangement, comprising:

an electrical stimulator ("spaced contact or measurement elements") 30 adapted to apply a current to at least one pair of electrodes ("two outer electrodes 30", see col. 9, ll. 27-44 and 61-67), the electrodes being positioned on at least one portion of a subject;

an analog to digital (A/D) converter ("A/D converter") adapted to measure voltage distributions resulting from the applied current (see col. 10, l. 52); and

a computer system ("control electronics") 50 adapted to detect an abnormality or an inconsistency within the at least one portion of the subject (see col. 23, ll. 36-58) by generating continuous, real time internal impedance data, the internal impedance data indicating the impedance change within the subject (see col. 10, ll. 40-55, and col. 13, ll. 49-65) wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject (see col. 10, ll. 40-55, and col. 13, ll. 49-65), and

a presence of a foreign object within the at least one portion of the subject.

**As to Claims 15 and 16**, Hovland teaches the following:

wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least one portion of the subject, wherein the fluid includes blood (see col. 10, ll. 40-55, and col. 13, ll. 49-65).

**As to Claim 17**, Hovland does not teach the following:

wherein the at least one portion of the foreign object comprises a metal material. However, this limitation is only an alternative to the limitation “wherein the impedance change is associated with at least one of” in independent claim 15.

**As to Claim 18**, Hovland teaches the following:

wherein the computer system generated continuous, real time internal impedance data comprises a continuous, real time internal impedance map to detect the abnormality or inconsistency within the subject, and wherein the impedance map indicates a location of the impedance change within the subject (see col. 23, ll. 36-58).

**As to Claim 19**, Hovland teaches the following:

wherein the computer system generates a plurality of static internal impedance maps to detect the abnormality or inconsistency within the subject, and wherein the

impedance maps indicate the impedance change within the subject (see col. 23, ll. 36-58).

**As to Claim 20**, Hovland teaches the following:

wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies (see col. 9, ll. 27-55).

**As to Claims 21 and 22**, Hovland teaches the following:

wherein the at least one portion of the subject is a portion of a brain or torso of the subject (this limitation is a matter of intended use of Hovland's apparatus in which Hovland's apparatus is capable of operating on the brain or torso).

**As to Claim 23**, Hovland teaches the following:

wherein the electrical stimulator is a function generator (see col. 10, ll. 49-67).

**As to Claim 24**, Hovland teaches the following:

wherein the A/D converter is a thirty- two channel, twenty-four bit A/D converter (see col. 10, ll. 49-67).

**As to Claim 25**, Hovland teaches the following:

wherein the computer system is adapted to obtain spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously (this limitation is a matter of intended use of Hovland's apparatus in which Hovland's apparatus is capable of obtaining spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously).

**As to Claim 26**, Hovland teaches the following:

An arrangement, comprising:

an electrical stimulator ("constant current source", see col. 9, ll. 40-44, and col. 9, l. 61-67);

a switch coupled to the electrical stimulator (see col. 12, ll. 60-67);

a plurality of electrodes 30 positioned on at least one portion of a subject (see col. 9, l. 61, to col. 10, l. 6),

wherein each of the electrodes is coupled to the switch (see col. 12, ll. 60-67);

an analog to digital (A/D) converter coupled to the switch and to each of the electrodes (see col. 10, l. 52); and

a computer system ("control electronics") 50 adapted to detect an abnormality or an inconsistency within the at least one portion of the subject (see col. 23, ll. 36-58) by generating continuous, real time internal impedance data, the internal impedance data indicating the impedance change within the subject (see col. 10, ll. 40-55, and col. 13, ll. 49-65) wherein the impedance change is associated with at least one of:

a change in at least one characteristic of a blood vessel within the subject (see col. 10, ll. 40-55, and col. 13, ll. 49-65), and

a presence of a foreign object within the at least one portion of the subject.

**As to Claims 27 and 28**, Hovland teaches the following:

wherein the impedance change associated with the change in the at least one characteristic of the blood vessel is at least one of: a change in a fluid flow rate within the at least one portion of the subject, and a change in a fluid volume within the at least

one portion of the subject, wherein the fluid includes blood (see col. 10, ll. 40-55, and col. 13, ll. 49-65).

**As to Claim 29**, Hovland does not teach the following:

wherein the at least one portion of the foreign object comprises a metal material. However, this limitation is only an alternative to the limitation “wherein the impedance change is associated with at least one of” in independent claim 15.

**As to Claim 30**, Hovland teaches the following:

wherein the computer system generated continuous, real time internal impedance data comprises a continuous, real time internal impedance map to detect the abnormality or inconsistency within the subject, and wherein the impedance map indicates a location of the impedance change within the subject (see col. 23, ll. 36-58).

**As to Claim 31**, Hovland teaches the following:

wherein the computer system generates a plurality of static internal impedance maps to detect the abnormality or inconsistency within the subject, and wherein the impedance maps indicate the impedance change within the subject (see col. 23, ll. 36-58).

**As to Claim 32**, Hovland teaches the following:

wherein the subject is a human being, and wherein the computer system is further adapted to detect the abnormality or the inconsistency within the human being by generating the internal impedance data over a predetermined range of frequencies (see col. 9, ll. 27-55).

**As to Claims 33 and 34**, Hovland teaches the following:

wherein the at least one portion of the subject is a portion of a brain or torso of the subject (this limitation is a matter of intended use of Hovland's apparatus in which Hovland's apparatus is capable of operating on the brain or torso).

**As to Claim 35**, Hovland teaches the following:

wherein the electrical stimulator is a function generator (see col. 10, ll. 49-67).

**As to Claim 36**, Hovland teaches the following:

wherein the switch is a thirty-two channel matrix switch (see col. 12, ll. 60-67).

**As to Claim 37**, Hovland teaches the following:

wherein the A/D converter is a thirty- two channel, twenty-four bit A/D converter (see col. 10, ll. 49-67).

**As to Claim 38**, Hovland teaches the following:

wherein the computer system is adapted to obtain spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously (this limitation is a matter of intended use of Hovland's apparatus in which Hovland's apparatus is capable of obtaining spectral electrical impedance tomography recordings and electroencephalography recordings, simultaneously).

**As to Claim 39**, Hovland teaches the following:

wherein the computer system 50 further is coupled to the electrical stimulator 30 (see col. 10, ll. 40-67).

**As to Claims 40-54**, because the subject matter of claims 40-54 directed to a an arrangement for use within a magnetic resonance is not distinct from the subject matter

of claims 26-39 directed to an arrangement, Hovland anticipates claims 40-54 for the same reasons as that provided for the rejection of claims 26-39 above.

**As to Claims 55-68**, because the subject matter of claims 55-68 directed to an arrangement is not distinct from the subject matter of claims 14-25 directed to an arrangement, Hovland anticipates claims 55-68 for the same reasons as that provided for the rejection of claims 14-25 above.

**As to Claims 80-85**, because the subject matter of claims 80-85 directed to an arrangement is not distinct from the subject matter of claims 14, 15, 18-20, and 25 directed to an arrangement, Hovland anticipates claims 80-85 for the same reasons as that provided for the rejection of claims 14, 15, 18-20, and 25 above.

**As to Claims 86-90**, because the subject matter of claims 86-90 directed to an arrangement is not distinct from the subject matter of claims 55, 56, and 59-61 directed to an arrangement, Hovland anticipates claims 86-90 for the same reasons as that provided for the rejection of claims 55, 56, and 59-61 above.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The other patents cited in the PTO-892 teach subject matter related to the Applicant's claims. The Examiner suggests reviewing these patents before responding to the present Office Action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAVIN NATNITHITHADHA whose telephone number is (571)272-4732. The examiner can normally be reached on Monday-Friday, 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor, II can be reached on (571) 272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Navin Natnithithadha/  
Patent Examiner, Art Unit 3735  
09/24/2010